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Optimal Design of Piezoelectric Materials for Maximal Energy Harvesting

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OPTIMAL DESIGN OF PIEZOELECTRIC MATERIALS FOR MAXIMAL ENERGY HARVESTING

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Goal

To seek a more sophisticated mathematical method to solve the Partial Differential Equations (PDEs) in the modeling of piezoelectricity. Our research intends to find optimal ways to boost the power output from piezoelectric transducers.

- Piezoelectric materials have the ability to transform mechanical strain into electrical charge and vice versa.
- Major limitations of piezoelectric energy harvesting revolve around the fact that the energy generated by these materials is on the order of microwatts or miliwatts, and is far too small to power most electronics.